

Claims:

1. The addition of inflatable and /or compressible and/or controllable lining to stents (medical or non medical) to control or limit the flow of fluids or gases through.
 - a. This includes any form of stents including but not limited to metallic, plastic, totally inflatable stents or otherwise of medical or non medical use.
 - b. This includes all shapes of stent designs including but not limited to ring, tubular, cylindrical, cone, pentagonal ...etc.
 - c. This includes all shapes and materials of linings used for the same purpose including but not limited to Gortex, Teflon, PTFE.
2. The addition of fixed lining narrowing to stents (medical or non medical) to control or limit the flow of fluids or gases through.
 - a. This includes any form of stents including but not limited to metallic, plastic, totally inflatable stents or otherwise of medical or non medical use.
 - b. This includes all shapes of stent designs including but not limited to ring, tubular, cylindrical, cone, pentagonal ...etc.
 - c. This includes all shapes and materials of linings used for the same purpose including but not limited to Gortex, Teflon, PTFE.
3. Stentless designs used for the same purpose (to control or limit the flow of fluids or gases through a vessel). The implantation techniques includes but is not limited to interventional, surgical or endoscopic).
4. The use of this technique includes but is not limited to inside the blood vessels, airways, urinary, gastrointestinal passages or industrial pipes.
5. This includes but is not limited to the different designs suggested above for this purpose.
6. The designs that will achieve the limitation or control of the flow inside the vessel in one or more than one direction are included as well.

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AMENDED CLAIMS

received by the International Bureau on 08 December 2004 (08.12.04): original claims 1 and 2 are unchanged ;
original claims 3,4,5,6 are cancelled ; new claims 7 to 22 are added.

From: Lotfy, Wael Mohamed Nabil
43 Giza Street, 12211 Cairo, Egypt
Fax: +202 7493070.

To: International Bureau of WIPO
34 chemin des Colombettes
1211 Geneva 20, Switzerland.
Fax : 41 22 740 14 35.

Subject :
International application number PCT/EG 2003/000009

In correspondance to your last written report,

As regards section C documents given under category X, I only have a short comment:

All these inventions had the aim of dilating a narrow segment of a vessel while my invention aims at the reverse i.e. narrowing a normal or a dilated or even an originally narrow tube.

These authors used the inflatable part of their stents to dilate their stents into their proper size; I use mine with a clearly different design essentially to produce a modifiable narrowing inside the stent.

Claims:

The claims 1 and 2 are unchanged, claims 3, 4, 5, 6 are cancelled; claims 7 to 22 are added.

7. Means for injecting an inflation material into the lining when needed.
8. The lining of claim 1 where the lining is connected to a check valve for inflating and deflating the lining.
9. The lining of claim 1 where the proximal lining end is adapted to accept an inflating fluid or gas comprising a one or two way valve.
10. The lining of claim 1 where the valve comprises a plug of an elastomer having a slit breakthrough which closes upon application with pressure within the tubing.
11. The lining of claim 1 where the material is selected from polyethylene, polypropylene, their interpolymers and block copolymers, polyacrylonitrile, polyethylene terephthalate and polybutylene terephthalate, polytetrafluoroethylene, Teflon,

silicones, polymeric plastic, natural and synthetic rubber and mixtures thereof.

12. The lining of claim 1 which has been collapsed or ballooned to an enlarged diameter.
13. The lining of claim 1 comprising a radioopaque marker.
14. The lining of claim 1 that is inflatable by CO₂, air, fluid, flowable gelatinous material, metallic powder or a hardening agent.
15. The lining of claim 1 wherein the check valve for inflation is of a breakaway design to permit separation from the means for injecting.
16. The lining of claim 1 that is fabricated solely or at least partly from a semipermeable membrane, and wherein the hollow wall has disposed hydrophilic material capable of absorbing a liquid to thereby increase the volume of said material. The final shape may be appropriate or modifiable by ballooning from the lumen or by inflation.
17. The lining of claim 11 that is fabricated from a semipermeable membrane, and wherein the hollow wall has disposed hydrophilic material that is a gel.
18. A lining for the stent as in claim 1 where the configuration is cylindrical, conal, pentagonal, trapezoidal, similar to naturally stenotic valves.. etc to achieve lumen narrowing.
19. The use of ultrashort stents (whether fixed, balloonable or inflatable) i.e. rings to support the narrowing lumen in claim 1.
20. Shaping the narrowing lining of claim 1 to direct the flow inside towards or away from a particular direction e.g. in a branched tube. Whether from the start or later on by either inflation of the lining or ballooning from the lumen.
21. The lining of claim 1 that is inflatable together with the stent with the same inflation procedure.
22. The lining of claim 1 that is inflatable to the point of totally occluding the lumen of the tube destined.

Yours sincerely,

Wael Lotfy, MD, MRCP
Associate Professor of Pediatrics
Cairo University

